



U.S. Pharmacopeia
The Standard of QualitySM

MedmarxSM 2001 Data Report Details: Top Drug Errors

Snapshot

Of all the medication errors reported to Medmarx in 2001 involving specific products, four out of five products reported were high-alert medications. High-alert medications, which are widely used in the health care setting, have a high risk of patient injury when administered incorrectly. These products represented 11 percent of all product selections in 2001. High-alert medications should be packaged, stored, distributed, prescribed, dispensed, and administered safely to minimize injury risk to patients.

Report Findings

- Of the product reported errors, 91 percent identified a single product.
- Twelve products were involved in 14 patient fatalities: meperidine, iohexol, potassium phosphates, doxorubicin, cocaine, epinephrine, ampicillin, esmolol, morphine, digoxin, heparin, and polyethylene glycol 3350 with electrolytes.

12 Products Involved in Patient Fatalities

Product	Indication
Meperidine*	Narcotic used to treat moderate to severe pain
Iohexol	Used in diagnosing certain medical problems
Potassium Phosphates*	Electrolyte replacement solution
Doxorubicin	A group of medicines known as antineoplastics. It is used to treat certain types of cancers.
Cocaine*	Narcotic used as a local anesthetic to numb an area before surgery; primarily used before ear, nose, and throat surgeries
Epinephrine	Stimulant that narrows blood vessels for control of bleeding, increases heart rate, and improves breathing in patients with asthma; also used to treat various allergic reactions and heart conditions
Ampicillin	Antibiotic used to treat bacterial infections
Esmolol	A type of beta-blocker used to slow the heart rate
Morphine*	Narcotic used to treat moderate to severe pain
Digoxin*	Used to improve the strength and efficiency of the heart, to control the rate and rhythm of the heartbeat
Heparin*	Anticoagulant or blood thinner that treats or prevents the formation of blood clots
Polyethylene Glycol 3350 with electrolytes	Used to clean the bowel before certain tests and surgery

A Look at Insulin

Harmful errors involving insulin have been frequently reported since the 1999 data report. For 2001, insulin remains the leading product involved in harmful medication errors. It was associated most often with improper dose/quantity errors, omission errors, and unauthorized drug errors.

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*Denotes high-alert medication

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Health care practitioners prescribe and administer insulin for patients with Type 1 and Type 2 diabetes. Insulin is available in a variety of formulations and requires individualized treatment protocols that must be carefully adjusted based on multiple medical conditions such as heart disease and high blood pressure. The complexity of the disease and treatment protocols could explain why it is frequently associated with medication errors.

A Look at Albuterol

Albuterol was the second most frequently reported product associated with medication errors in the 2001 Medmarx database. This data report marks the first time that albuterol was identified among the top five products involved in medication errors.

Health care practitioners prescribe and administer albuterol to improve breathing in patients with asthma, bronchitis, emphysema and other conditions. Albuterol omissions increased in late spring (May) and late fall (October–December)—a time of year that correlates with the onset of respiratory ailment season.

Top Products by Error Type

Type of Error	Product	Indication
Omission	1. Albuterol	Typically used to treat wheezing and shortness of breath associated with asthma and other respiratory ailments
	2. Insulin*	Used to treat patients with Type 1 or Type 2 diabetes
	3. Cefazolin	Antibiotic used to treat various bacterial infections
Improper Dose/Quantity	1. Heparin*	Anti-coagulant or blood thinner that treats or prevents the formation of blood clots
	2. Insulin*	Used to treat patients with Type 1 or Type 2 diabetes
	3. Morphine*	Narcotic used to treat moderate to severe pain
Prescribing	1. Insulin*	Used to treat patients with Type 1 or Type 2 diabetes
	2. Morphine*	Narcotic used to treat moderate to severe pain
	3. Oxycodone and Acetaminophen (Combination)	Combination narcotic used to treat moderate to severe pain

Top 10 Products Involved in Patient Harm

Product	Indication
1. Insulin*	Used to treat patients with Type 1 or Type 2 diabetes
2. Morphine*	Narcotic used to treat moderate to severe pain
3. Heparin*	Anticoagulant or blood thinner that treats or prevents the formation of blood clots
4. Warfarin*	Anticoagulant or blood thinner that treats or prevents the formation of blood clots
5. Potassium Chloride*	Used to prevent or treat potassium deficiency
6. Furosemide	Diuretic that reduces circulating blood volume to eliminate excess fluid from the body
7. Vancomycin	Antibiotic used to treat various bacterial infections
8. Hydromorphone	Narcotic used to treat moderate to severe pain
9. Meperidine	Narcotic used to treat moderate to severe pain
10. Diltiazem	A calcium channel blocker that facilitates the pumping of the heart in patients with hypertension or angina; it also slows a rapid heartbeat

For a copy of the Medmarx 2001 data report, send an e-mail to mediarelations@usp.org. For more information about Medmarx, visit www.medmarx.com.

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*Denotes high-alert medication